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Farnesol beyond morphogenesis control: effect in Non- *Candida albicans Candida* species

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Candididasis is one of the most important life-threatening opportunistic mycosis mainly occurring in individuals with impaired immunity. Although *Candida albicans* remains the most common fungal isolate, an increase in Non-*Candida albicans Candida* (NCAC) species is being reported. In fact, *Candida glabrata*, *Candida krusei*, *Candida parapsilosis* and *Candida tropicalis* are emerging as clinically relevant pathogens. So it is of great importance to study the mechanisms of infection by these new species. Recently, farnesol, a quorum sensing molecule in *Candida albicans* has been the focus of intense study concerning its effect in *Candida*'s virulence and consequently its potential application as therapeutic agent. Nevertheless, to date, the action and role of farnesol within Candida genus is yet not known. In this sense, the aim of this study is to gain insights into the effect of farnesol in NCAC species. Accordingly, the effect of farnesol on *Candida glabrata*, *Candida krusei*, *Candida parapsilosis* and *Candida tropicalis* reference strains morphology and growth was evaluated. To assess morphological alterations, cells were grown overnight in RPMI medium supplemented with 150 micromolar farnesol and inspected under contrast light microscopy, after overnight growth. *Candida* species farnesol susceptibilities were assayed at 0.5, 5, 50, 100 and 150 micromolar. Growth medium, farnesol solutions and inocula were prepared following the recommendations outlined by the National Committee for Clinical Laboratory Standards M-27A adapted to micro-dilution. The obtained results show that, at the concentrations assayed, farnesol has an antifungal activity against NCAC species, with different susceptibility profiles. Additionally, surviving cells exposed to the highest farnesol concentrations did not present morphological alterations comparing to controls. These findings show that the quorum sensing molecule, farnesol, has distinct species-specific effects, different from those described for *Candida albicans*. Moreover, the results presented herein suggest that farnesol may play a pivotal role in inter-species growth control, namely within mixed *Candida* species cultures by the regulation of different cellular processes.